

Appl. No. : 09/902,441
Filed : July 9, 2001

REMARKS

Please cancel claims 1-12, 14-17, 19-23, and 29. Claim 13 has been amended. Support for such amendment can be found in the Specification as filed on page 6, lines 19-21. As a result, Claims 13, 18, 24-28 and 30 are pending.

Claim rejections under 35 U.S.C. §103

The Examiner has maintained rejection of Claims 12, 19-23 and 29 under 35 U.S.C. §103(a) as being allegedly unpatentable over Haldas *et al.* (USP 3,772,045), Yamagisi *et al.* (USP 4,190,454), Donnison *et al.* (J. Dental Res. 1963 42:587-593), or Mallon (ZKG International 1988 41:309-311). More specifically, the Examiner considers control of particle size as an obvious design choice unless applicants show criticality.

While the applicant maintains that all claims are patentable, Claims 12, 17, 19-23, and 29 have been canceled solely to expedite the allowance of the instant application. The Applicant wishes to point out that calcium tartrate is hardly soluble in water. See, for example, EN 31.5.2001 Official Journal of the European Communities L 146/3, or Merck Index on-line (Calcium tartrate $\text{CaC}_4\text{H}_4\text{O}_6 \times 2\text{H}_2\text{O}$ solubility: 7.70×10^{-7} mol/l at 25°C), see the attached document. Therefore, the assumption that the prior art solutions (compositions) would contain particles having mean particle size less than about 30 μm does not stand.

In addition, to expedite allowance of the present application, Applicant has canceled claims which were withdrawn as being directed to non-elected inventions.

The Applicant has amended Claim 13 to include "plaster" in the Markush group of powders. Support for such amendment can be found in the Specification as filed on page 6, lines 19-21. Therefore, amendments to Claim 13 does not introduce new matter.

Allowable Subject Matter

In the Office Action, the Examiner indicated that Claims 13, 24-28 and 30 were allowed. The Examiner did not indicate the status of Claims 17 and 18. The Applicant assumes that Claim 18 was also allowed.

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CONCLUSION

The undersigned has made a good faith effort to respond to all of the rejections in the case and to place the claims in condition for immediate allowance. Nevertheless, if any undeveloped issues remain or if any issues require clarification, the Examiner is respectfully requested to call the undersigned at (619) 687-8633 (direct line), to discuss such issues.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: June 22, 2004

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Lab Tools - Tables for laboratory use

- SOLUTIONS - AQUEOUS SYSTEMS -

SOLUBILITY PRODUCTS OF SLIGHTLY SOLUBLE INORGANIC COMPOUNDS

| Substance | Formula | Solubility product at given temperature, in [mol/l] |
|------------------------|--|--|
| Aluminium hydroxide | Al(OH) ₃ | 4.00 × 10 ⁻¹³ (15°) 1.50 × 10 ⁻¹⁵ (18°) 3.70 × 10 ⁻¹⁵ (25°) |
| Arsenic(III) sulfide | As ₂ S ₃ | 4.00 × 10 ⁻²⁹ (18°) |
| Barium carbonate | BaCO ₃ | 7.00 × 10 ⁻⁹ (16°) 8.10 × 10 ⁻⁹ (25°) |
| Barium chromate | BaCrO ₄ | 1.60 × 10 ⁻¹⁰ (18°) 2.40 × 10 ⁻¹⁰ (28°) |
| Barium fluoride | BaF ₄ | 1.60 × 10 ⁻⁶ (10°) 1.70 × 10 ⁻⁶ (18°) |
| Barium oxalate | BaC ₂ O ₄ × 2H ₂ O | 1.20 × 10 ⁻⁷ (18°) |
| Barium sulfate | BaSO ₄ | 8.70 × 10 ⁻¹¹ (18°) 1.08 × 10 ⁻¹⁰ (25°) 1.98 × 10 ⁻¹⁰ (50°) |
| Beryllium hydroxide | Be(OH) ₂ | 2.70 × 10 ⁻¹⁹ (25°) |
| Bismuth hydroxide | Bi(OH) ₃ | 4.30 × 10 ⁻³¹ (18°) |
| Bismuth oxide chloride | BiOCl | 1.60 × 10 ⁻³¹ (25°) |
| Bismuth sulfide | Bi ₂ S ₃ | 1.60 × 10 ⁻⁷² (18°) |
| Cadmium carbonate | CdCO ₃ | 2.50 × 10 ⁻¹⁴ (25°) |
| Cadmium oxalate | CdC ₂ O ₄ × 3H ₂ O | 1.53 × 10 ⁻⁸ (18°) |
| Cadmium sulfide | CdS | 3.60 × 10 ⁻²⁹ (18°) |
| Calcium carbonate | CaCO ₃ | 4.80 × 10 ⁻⁹ (25°) |
| Calcium fluoride | CaF ₂ | 3.40 × 10 ⁻¹¹ (18°) 3.95 × 10 ⁻¹¹ (26°) |
| Calcium hydroxide | Ca(OH) ₂ | 5.47 × 10 ⁻⁶ (18°) |
| Calcium oxalate | CaC ₂ O ₄ × H ₂ O | 1.78 × 10 ⁻⁹ (18°) 2.57 × 10 ⁻⁹ (25°) |
| Calcium phosphate | Ca ₃ (PO ₄) ₂ | 1.00 × 10 ⁻²⁵ (25°) |
| Calcium sulfate | CaSO ₄ | 6.10 × 10 ⁻⁵ (10°) 2.45 × 10 ⁻⁵ (25°) |
| Calcium tartrate | CaC ₄ H ₄ O ₆ × 2H ₂ O | 7.70 × 10 ⁻⁷ (25°) |
| Cobalt(II) carbonate | CoCO ₃ | 1.00 × 10 ⁻¹² (25°) |
| Cobalt(II) sulfide | CoS | 1.90 × 10 ⁻²⁷ (20°) |
| Copper(I) bromide | CuBr | 4.15 × 10 ⁻⁸ (18-20°) |
| Copper(II) carbonate | CuCO ₃ | 1.37 × 10 ⁻¹⁰ (25°) |
| Copper(I) chloride | CuCl | 1.02 × 10 ⁻⁶ (18-20°) |
| Copper(II) hydroxide | Cu(OH) ₂ | 5.60 × 10 ⁻²⁰ (25°) |
| Copper(I) iodide | CuI | 5.06 × 10 ⁻¹² (18-20°) |
| Copper(I) sulfide | Cu ₂ S | 2.00 × 10 ⁻⁴⁷ (18°) |
| Copper(II) sulfide | CuS | 8.00 × 10 ⁻⁴⁵ (18°) |
| Copper(I) thiocyanate | CuSCN | 1.60 × 10 ⁻¹¹ (18°) |
| Iron(II) carbonate | FeCO ₃ | 2.50 × 10 ⁻¹¹ (20°) |
| Iron(II) hydroxide | Fe(OH) ₂ | 1.64 × 10 ⁻¹⁴ (18°) |
| Iron(III) hydroxide | Fe(OH) ₃ | 1.10 × 10 ⁻³⁶ (18°) |
| Lanthanum hydroxide | La(OH) ₃ | ~ 10 ⁻²⁰ (25°) |
| Lead bromide | PbBr ₂ | 3.90 × 10 ⁻⁵ (25°) |
| Lead carbonate | PbCO ₃ | 3.30 × 10 ⁻¹⁴ (18°) |

| | | |
|------------------------------------|--|--|
| Lead chloride | PbCl ₂ | 2.12 × 10 ⁻⁵ (25°) |
| Lead chromate | PbCrO ₄ | 1.77 × 10 ⁻¹⁴ (25°) |
| Lead fluoride | PbF ₂ | 2.70 × 10 ⁻⁸ (9°) 3.20 × 10 ⁻⁸ (18°) |
| Lead iodate | Pb(IO ₃) ₂ | 5.30 × 10 ⁻¹⁴ (9.2°) 1.20 × 10 ⁻¹³ (18°) 2.60 × 10 ⁻¹³ (25.8°) |
| Lead iodide | PbI ₂ | 7.50 × 10 ⁻⁹ (15°) 1.40 × 10 ⁻⁹ (25°) |
| Lead oxalate | PbC ₂ O ₄ | 2.74 × 10 ⁻¹¹ (18°) |
| Lead sulfate | PbSO ₄ | 1.06 × 10 ⁻⁸ (18°) |
| Lead sulfide | PbS | 3.40 × 10 ⁻²⁸ (18°) |
| Lithiumcarbonat | Li ₂ CO ₃ | 1.70 × 10 ⁻³ (25°) |
| Magnesium ammonium phosphate | MgNH ₄ PO ₄ | 2.50 × 10 ⁻¹³ (25°) |
| Magnesium carbonate | MgCO ₃ | 2.60 × 10 ⁻⁵ (12°) |
| Magnesium fluoride | MgF | 7.10 × 10 ⁻⁹ (18°) |
| Magnesium hydroxide | Mg(OH) ₂ | 1.20 × 10 ⁻¹¹ (18°) |
| Manganese carbonate | MnCO ₃ | 8.80 × 10 ⁻¹⁰ (18°) |
| Manganese sulfide | MnS | 7.00 × 10 ⁻¹⁶ (18°) |
| Mercury(I) bromide | Hg ₂ Br ₂ | 1.30 × 10 ⁻²¹ (25°) |
| Mercury(I) chloride | Hg ₂ Cl ₂ | 2.00 × 10 ⁻¹⁸ (25°) |
| Mercury(I) chromate | Hg ₂ CrO ₄ | 2.00 × 10 ⁻⁹ (25°) |
| Mercury(I) cyanide | Hg ₂ (CN) ₂ | 5.00 × 10 ⁻⁴⁰ (25°) |
| Mercury(I) iodide | Hg ₂ I ₂ | 1.20 × 10 ⁻²⁸ (25°) |
| Mercury(II) iodide | HgI ₂ | 3.20 × 10 ⁻²⁹ (25°) |
| Mercury(I) oxide | Hg ₂ O | 1.60 × 10 ⁻²³ (25°) |
| Mercury(II) oxide | HgO | 1.70 × 10 ⁻²⁶ (25°) |
| Mercury(I) sulfide | Hg ₂ S | 1.00 × 10 ⁻⁴⁷ (18°) |
| Mercury(II) sulfide | HgS | 3.00 × 10 ⁻⁵⁴ (18°) |
| Nickel(II) carbonate | NiCO ₃ | 1.35 × 10 ⁻⁷ (15°) |
| Nickel(II) hydroxide | Ni(OH) ₂ | 1.60 × 10 ⁻¹⁴ (25°) |
| Nickel(II) sulfide | NiS | 1.00 × 10 ⁻²⁶ (20°) |
| Potassium hexachloroplatinate (IV) | K ₂ PtCl ₆ | 1.10 × 10 ⁻⁵ (18°) |
| Potassium hydrogen tartrate | KHC ₄ H ₄ O ₆ | 3.80 × 10 ⁻⁴ (18°) |
| Potassium perchlorate | KClO ₄ | 1.07 × 10 ⁻² (25°) |
| Silver arsenate | Ag ₃ AsO ₄ | 1.00 × 10 ⁻¹⁹ (25°) |
| Silver bromide | AgBr | 4.10 × 10 ⁻¹³ (18°) 7.70 × 10 ⁻¹³ (25°) |
| Silver chloride | AgCl | 0.21 × 10 ⁻¹⁰ (4.7°) 0.37 × 10 ⁻¹⁰ (9.7°) 1.56 × 10 ⁻¹⁰ (25°) 13.2 × 10 ⁻¹⁰ (50°) 215 × 10 ⁻¹⁰ (100°) |
| Silver chromate | Ag ₂ CrO ₄ | 1.20 × 10 ⁻¹² (14.8°) 9.00 × 10 ⁻¹² (25°) |
| Silver iodide | AgI | 0.32 × 10 ⁻¹⁶ (13°) 1.50 × 10 ⁻¹⁶ (25°) |
| Silver sulfide | Ag ₂ S | 1.60 × 10 ⁻⁴⁹ (18°) |
| Silver thiocyanate | AgSCN | 0.49 × 10 ⁻¹² (18°) 1.16 × 10 ⁻¹² (25°) |
| Strontium carbonate | SrCO ₃ | 1.60 × 10 ⁻⁹ (25°) |
| Strontium fluoride | SrF ₂ | 2.80 × 10 ⁻⁹ (18°) |
| Strontium oxalate | SrC ₂ O ₄ | 5.60 × 10 ⁻⁸ (18°) |
| Strontium sulfate | SrSO ₄ | 2.80 × 10 ⁻⁷ (2.9°) 3.80 × 10 ⁻⁷ (17.4°) |
| Thallium(I) bromide | TlBr | 3.90 × 10 ⁻⁶ (25°) |
| Thallium(I) chloride | TlCl | 1.90 × 10 ⁻⁴ (25°) |
| Thallium(I) iodide | TlI | 5.80 × 10 ⁻⁸ (25°) |
| Thallium(III) hydroxide | Tl(OH) ₃ | 1.40 × 10 ⁻⁵³ (25°) |
| Thallium(II) sulfide | Tl ₂ S | 9.00 × 10 ⁻²³ (25°) |
| Thallium(I) thiocyanate | TlSCN | 2.30 × 10 ⁻⁴ (25°) |

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|---------------------|---------------------|--------------------------------|
| Zinc carbopate | ZnCO ₃ | 6.00 x 10 ⁻¹¹ (25°) |
| Zinc hydroxide | Zn(OH) ₂ | 1.00 x 10 ⁻¹⁷ (25°) |
| Zinc sulfide, alpha | ZnS | 6.90 x 10 ⁻²⁶ (20°) |
| Zinc sulfide, beta | ZnS | 1.10 x 10 ⁻²⁴ (25°) |

BACK TO TOP

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